

WHAT IS CLAIMED IS:

1. A network relaying device comprising;

a determining unit which detects size information for data transfer of devices including a transmitting-side device arranged on network, a transmitting-side network relaying device connected to the transmitting-side device, a receiving-side network relaying device for performing a relaying operation with the transmitting-side network relaying device, and a receiving-side device connected to the receiving-side network relaying device and arranged on the receiving-side networks, and which determines the minimum one of the size information as a maximum transferable size; and

an updating unit which updates a maximum transferable size information of the transmitting-side device based on the maximum transferable size determined by the determining unit.

2. A network relaying device according to claim 1, wherein the size information detected by the determining unit is a receiving buffer size, and

wherein the determining unit determines the minimum one of the receiving buffer sizes as the maximum transferable size, when the determining unit determines that a request packet received by the network relaying device is aimed at investigating the receiving buffer sizes of the devices.

3. A network relaying device according to claim 1, wherein the size information detected by the determining unit is a usable maximum command size, and

wherein the determining unit determines the
5 minimum one of the maximum command sizes as the maximum transferable size, when the determining unit determines that a request packet received by the network relaying device is aimed at investigating the maximum command sizes of the devices.

10 4. A network relaying device according to claim 1, wherein the determining unit executes at least the detecting process at the time of activating the network relaying device.

5. A network relaying device according to
15 claim 1, wherein the determining unit executes at least the detecting process at the time of resetting the bus of the network relaying device.

6. A network relaying device according to
20 claim 1, wherein the updating unit receives a response packet transmitted from the receiving-side device in accordance with a request packet from the transmitting-side device, and updates the response packet to the maximum transferable size determined by the determining unit.

25 7. A network relaying device according to claim 1, wherein the updating unit receives a response packet transmitted from the receiving-side device in

accordance with a request packet from the transmitting-side device, and updates the response packet to the maximum transferable size determined by the determining unit, the updated response packet is transferred to the transmitting-side device so that the transmitting-side device appropriately dividing a transmission packet in accordance with the maximum transferable size.

8. A network relaying device comprising;

a determining unit which detects size information for data transfer of devices including a transmitting-side device arranged on network, a transmitting-side network relaying device connected to the transmitting-side device, a receiving-side network relaying device for performing a relaying operation with the transmitting-side network relaying device, and a receiving-side device connected to the receiving-side network relaying device and arranged on the other side of said plurality of the wire networks, and which determines the minimum one of the size information as a maximum transferable size; and

a dividing unit which divides a packet received from the transmitting-side device in accordance with the maximum transferable size determined by the determining unit.

9. A network relaying device according to claim 8, wherein the size information detected by the determining unit is a receiving buffer size, and

wherein the determining unit determines the minimum one of the receiving buffer sizes as the maximum transferable size, when the determining unit determines that a request packet received by the network relaying device is aimed at investigating the receiving buffer sizes of the devices.

10. A network relaying device according to claim 8, wherein the size information detected by the determining unit is a usable maximum command size, and wherein the determining unit determines the minimum one of the maximum command sizes as the maximum transferable size, when the determining unit determines that a request packet received by the network relaying device is aimed at investigating the maximum command sizes of the devices.

11. A network relaying method comprising:
detecting size information for data transfer of all devices including transmitting-side devices arranged on network, a transmitting-side network relaying device connected to the transmitting-side devices, a receiving-side network relaying device for performing a relaying operation with the transmitting-side network relaying device, and a receiving-side device connected to the receiving-side network relaying device and arranged on the other (N') of said plurality of the wire networks;

determining the minimum one of the detected size

information as a maximum transferable size; and

updating the maximum transferable size information of the transmitting-side devices based on the maximum transferable size determined.

5 12. A network relaying method according to claim 11, wherein the detected size information is a receiving buffer size, and

 wherein the minimum one of the receiving buffer sizes is determined as the maximum transferable size, when it is determined that a request packet received by the network relaying device is aimed at investigating the receiving buffer sizes of the devices.

10 13. A network relaying method according to claim 11, wherein the detected size information is a usable maximum command size, and

 wherein the minimum one of the maximum command sizes is determined as the maximum transferable size, when it is determined that a request packet received by the network relaying device is aimed at investigating the maximum command sizes of the devices.

15 14. A network relaying method according to claim 11, wherein the detecting process is executed at the time of activating the network relaying device.

20 15. A network relaying method according to claim 11, wherein the detecting process is executed at the time of resetting the bus of the network relaying device.

16. A network relaying method according to claim 11, wherein the updating process is performed by receiving a response packet transmitted from the receiving-side device in accordance with a request
5 packet from the transmitting-side device, and updating the response packet to the determined maximum transferable size.

17. A network relaying method according to claim 11, wherein the updating process is performed by receiving a response packet transmitted from the
10 receiving-side device in accordance with a request packet from the transmitting-side device, and updating the response packet to the maximum transferable size determined by the determining unit, the updated
15 response packet is transferred to the transmitting-side device so that the transmitting-side device appropriately divides a transmission packet in accordance with the maximum transferable size.

18. A network relaying method comprising;
20 detecting size information for data transfer of all the devices including a transmitting-side device arranged on network, a transmitting-side network relaying device connected to the transmitting-side device, a receiving-side network relaying device for
25 performing a relaying operation with the transmitting-side network relaying device, and a receiving-side device connected to the receiving-side network relaying

device and arranged on the other side of said plurality of the wire networks;

determining minimum one of the detected size information as a maximum transferable size; and

5 dividing a packet received from the transmitting-side device in accordance with the determined maximum transferable size.

19. A network relaying method according to claim 18, wherein the detected size information is a
10 receiving buffer size, and

 wherein the minimum one of the receiving buffer sizes is determined as the maximum transferable size, when it is determined that a request packet received by the network relaying device is aimed at investigating
15 the receiving buffer sizes of the devices.

20. A network relaying method according to claim 18, wherein the detected size information is a usable maximum command size, and

 wherein the minimum one of the maximum command
20 sizes as the maximum transferable size, when it is determined that a request packet received by the network relaying device is aimed at investigating the maximum command sizes of the devices.